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Remarks.

The Examiner's comments and objections leading to the rejection of the claims 15-35, pending in the application have been carefully considered by the Applicant.

Reconsideration of the grounds stated for the rejection of the claims, as pending now in the application is respectfully solicited for the following reasons.

Examiner notes that Arima discloses "*a restoring method ...by setting ...rods at the bottom of the foundation of an object structure...*".

The term "*foundation soil*", instead is widely known, and interpreted by those with ordinary skills in the art, as meaning the soil mass to which the pressure exerted by an overlying built structure, both static (dead or imposed load) and dynamic (wind or other temporary loads), is transmitted. Such a soil mass or "foundation soil" has the size and shape, determined by the elastic theory, of a "bulb", known as the "bulb of pressure" (see the amendment to the specification introduced at page 2, after line 22 and the enclosure called Canadian Building Digest, CBD-148, as submitted with the Applicant's Response to the Official Actions of August 30, 2000 and March 5, 2001, filed on March 16, 2001). The size of the "bulb of pressure", i.e. the soil mass defined as the "foundation soil" is generally considered to be at least twice the width of the foundation (see CBD-148, figure 1, the depth marked laterally by 2B), correction coefficients being considered in the case of more foundations of the same or different built structures which are adjacent (single foundation pressure bulbs interfere), to include the weight influence of the overlying and adjacent soil masses and that of the dynamic stresses which affect the built structures, such as that produced by the wind or temporary loads (a heavy truck or airplane passing over a road or a lane).

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Accordingly, the limitation "*deep in the foundation soil...withstands and rejects dynamic and static weights exerted thereon by said built structures and overlying and adjacent soil masses*" will be interpreted by those skilled in the art as the soil mass/zone, underlying a foundation which is covered by the so called "pressure bulb" generated by loads such as the above mentioned ones.

Thus the injection depth claimed is "variable", but within the range given by at least the extension depth of the pressure bulb, as documented by figures 5-6 of the application, where it is clearly shown as the injections/consolidation goes further than the bottom of the foundation, for a distance being at least twice as deep as that of the (bottom of the) foundation.

This is neither disclosed nor suggested by Arima, which always teaches injection points located immediately under, i.e. at the "bottom" of the foundations.

Arima is in fact completely silent on problems raised by long term settlements into the "foundation soil" i.e. the soil mass affected by pressure bulb.

CBD-148, at page 2, second paragraphs explains differences between the "immediate" settlement (unevenly settled buildings due to superficial soil settlements or subsidence following catastrophic events, such as earthquakes) occurring in the soil layers immediately under the foundations, (which are disclosed by Arima as compensated by restoring injections performed immediately under the foundation), and the "consolidation" settlement, which occurs over long time periods, due to subsidence in the deeper layers of the soil, and which requires interventions "deep into the foundation soil", i.e. all through the pressure bulb covered mass, to increase the bearing capacity of the foundation soils (the claimed invention).

It ensues that Arima discloses a method of the type described in US-4,567,708 while the pending claims refer to a different method, providing increase of the foundation soil bearing capacity (see lines 18-28, page 2 of the applicant's WO-specification).

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To further illustrate the differences between the two methods (Arima versus the applicant's claimed one) three figures from an explanatory brochure of the applicant are herewith enclosed as Encl.1 (old method) and 2-3 (new, claimed method), respectively.

It will be noted illustrated in Encl. 1, a method for restoring a building with features such as those disclosed by Arima, where a *compaction (compattazione)* of the soil layers under the foundation with related raising (*sollevamento*) of a building is obtained.

In Enclosures 2-3, the new, claimed method is illustrated, where although a raising of the building and/or of the terrain level may be achieved and detected, the treatment is carried out by injections "deep into the foundation soil" leading to a *consolidation by compression (compressione) of the foundation soil due to the "compaction of the foundation soil contiguous to the injection zone"*.

Examiner notes that Arima discloses monitoring of the *"...rising rate of the structure ...in accordance with the progress of the operation, or the level of the floor surface ...until the structure is restored to the normal condition"*.

The detection step as claimed by the applicant is completely different, being defined as:

"...detect the moment when built structure or the soil surface overlying the injection zone, begins to raise which is the moment in which the compaction of the soil has reached levels...".

It is clear for the skilled reader that the detection feature claimed in the pending claims regards monitoring of *"the moment when... begins to raise" ... "as an indication of..."*, as an indication of the reaching of the satisfactory compaction/bearing capacity of the foundation soil and not the reaching of the "normal level" by the built structure, as in Arima.

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It is clear that the detection step claimed has a completely different and new significance.

It can be used also for monitoring injection consolidations of foundation soils on which the buildings have not subsided.

This real-time monitoring feature, as an indication of the reaching of a satisfactory level of the bearing capacity of a foundation soil is neither disclosed nor suggested by Arima or by any other prior art document cited during the prosecution of the application.

Accordingly, reconsideration of the rejection of the claims 15-35, and allowance thereof is respectfully solicited.


Applicant firmly believes that the method claimed is new and unobvious over the cited prior art.

It is however submitted that even in the unlikely eventuality that an obviousness of the claimed process steps would be hypothesized, the method claimed would nevertheless represent a new use of such process, and in accordance with 35 USC § 100(b) and 35 USC § 101, such a process is patentable.

While it is believed that the amended claims properly and clearly define the present invention, applicant would be open to any suggestion or amendment the Examiner may have or propose concerning different claim phraseology which, in the Examiner's opinion, more accurately defines the present invention.

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Encl.: ENCLOSURES 1, 2 AND 3.